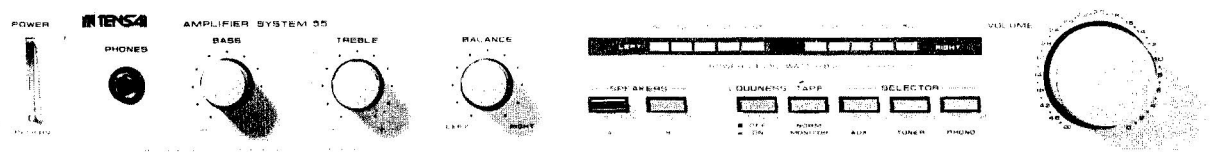
TA-2720

INTEGRATED AMPLIFIER

TENSAI
INTERNATIONAL



Service Manual

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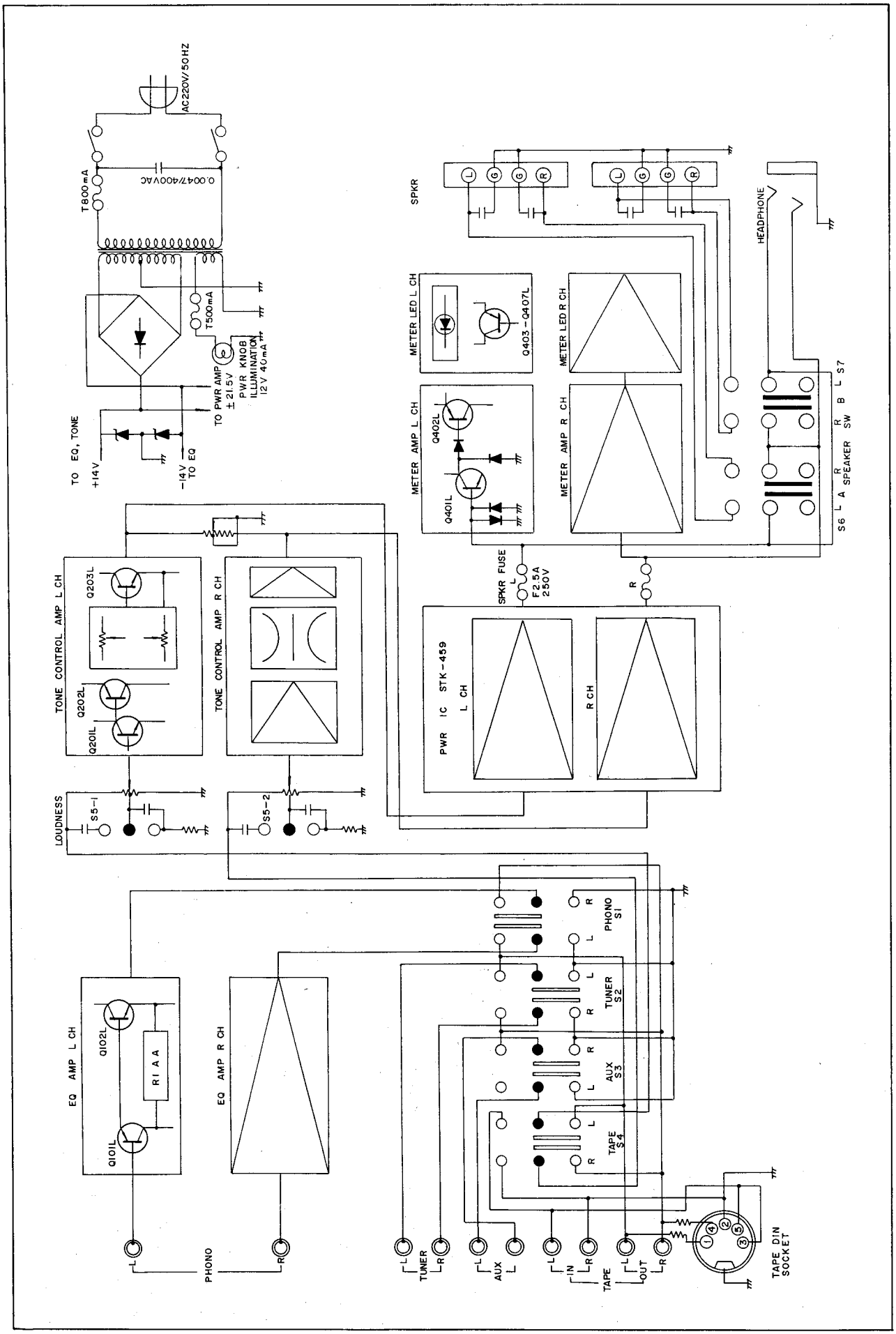
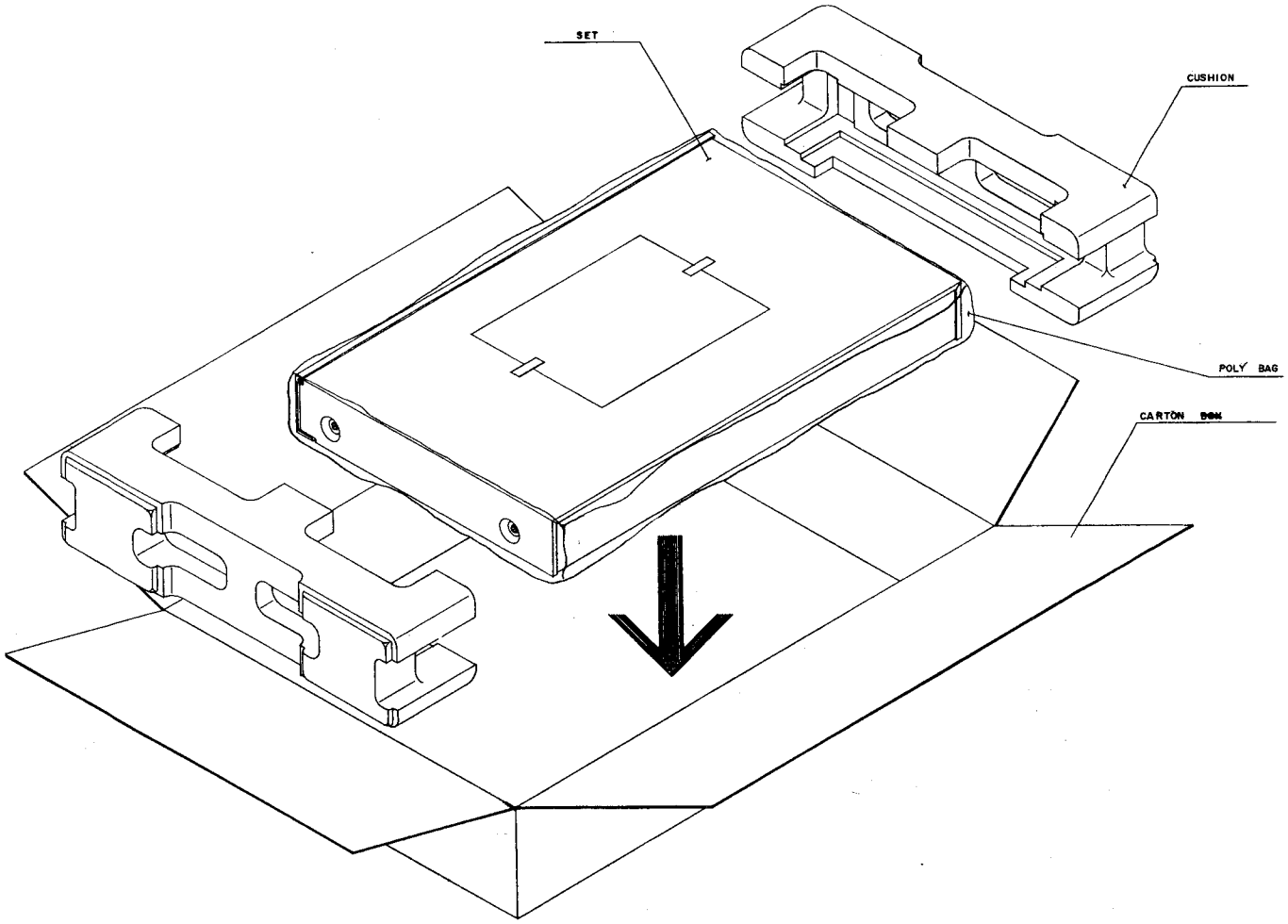
● SPECIFICATIONS

Output power (both channels driven)	
at 8 ohms, 1 KHz	2× 22W
at 4 ohms, 1 KHz	2× 27W
Harmonic Distortion	0.05%
Frequency Response	10 Hz-50 KHz
Tone Control	
Bass:	±10 dB
Treble:	±10 dB
Loudness Control	+7 dB/100 Hz +6 dB/10 kHz
Input Sensitivity/Impedance	
Phono:	2.5 mV/47 Kohms
Tuner:	150 mV/47 Kohms
Aux:	150 mV/47 Kohms
Tape:	150 mV/47 Kohms
Output Level/Impedance	
Tape:	150mV
Headphones:	8 ohms—2 Kohms
Speakers:	A, B, A+B, OFF/8ohms or more than 4 ohms
Signal-to-Noise Ratio	
Phono:	70 dB
Tuner, Aux, Tape:	90 dB
Power Consumption	125 W at rated power output 15W at no signal
Dimension (W × H × D)	430× 50× 250mm
Weight	5.7Kg

● BLOCK DIAGRAM



● PACKING



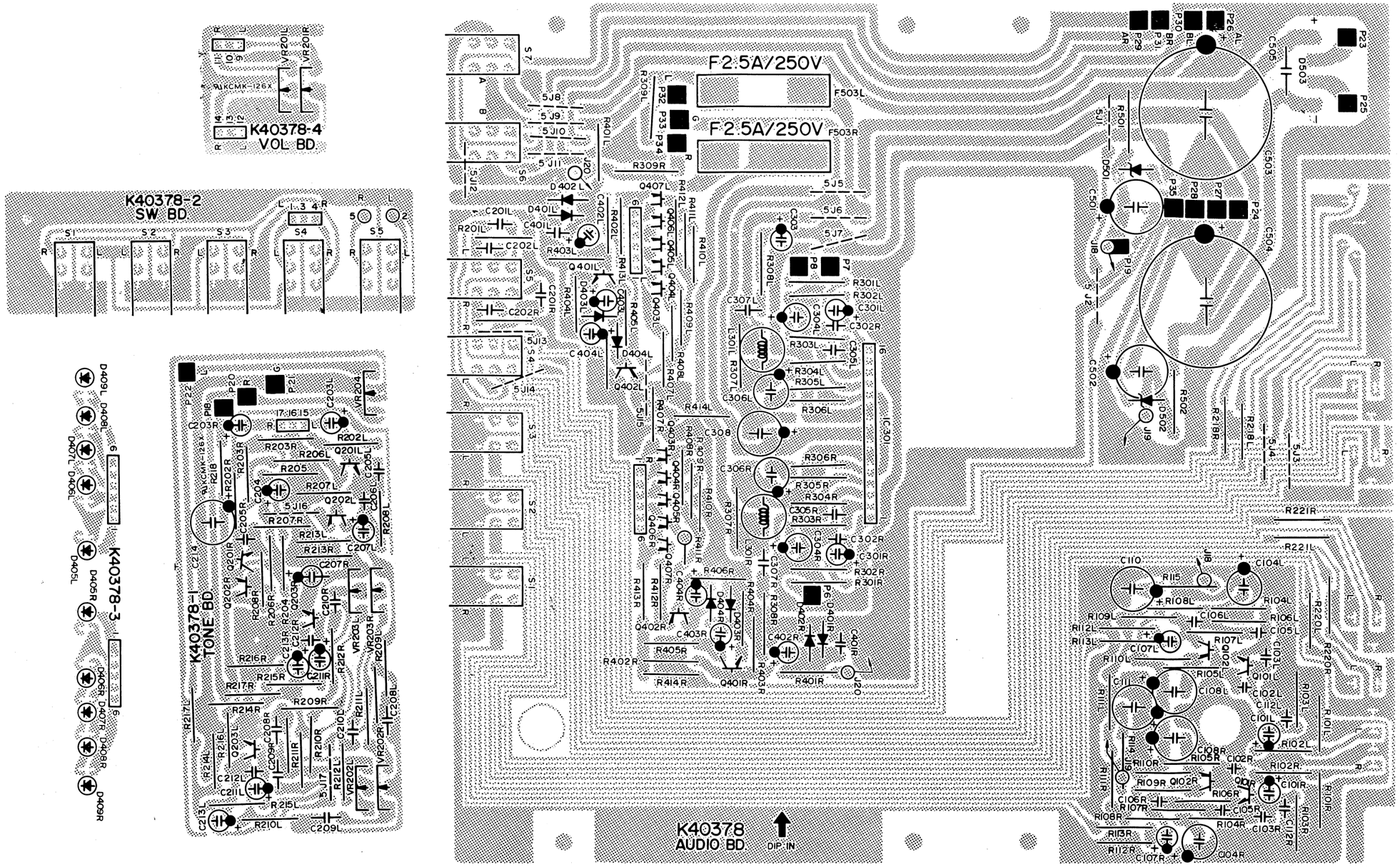
● PARTS LIST

Ref No.	Parts No.	Description	Q'ty
AUDIO PC BOARD ASS'Y K40378			
SEMICONDUCTORS			
Q101L/R		Transistor MPS9633C	**2**
Q102L/R		Transistor 2SA970BL	2
Q201L/R		Transistor MPS9633C	2
Q202L/R		Transistor 2SA970BL	2
Q203L/R		Transistor MPS9633C	2
Q401L/R		Transistor 2SC1815Y	2
Q402L/R		Transistor 2SA1015Y	2
Q403L/R		Transistor 2SA1015Y	2
Q404L/R		Transistor 2SA1015Y	2
Q405L/R		Transistor 2SA1015Y	2
Q406L/R		Transistor 2SA1015Y	2
Q407L/R		Transistor 2SA1015Y	2
D401L/R		Diode IN60(Pair)	2
D402L/R		Diode CDG24	2
D403L/R		Diode CDG24	2
D404L/R		Diode CDG24	2
D405L/R		LED SLP 154B	2
D406L/R		LED SLP 154B	2
D407L/R		LED SLP 154B	2
D408L/R		LED SLP 154B	2
D409L/R		LED SLP 154B	2
D501		Zener Diode MZ314	2
D502		Zener Diode MZ314	1
D503		Diode Rect KBL-02	1
IC301		STK-459	1
COILS			
L301L/R	PE30152	Coil 0.5uH	2
RESISTOR			
R101L/R	60F 224-¼ J	Carbon 220K ¼WJ	2
R102L/R	60F 472-¼ J	Carbon 4.7K ¼ WJ	2
R103L/R	60F 683-¼ J	Carbon 68K ¼ WJ	2
R104L/R	60F 621-¼ J	Carbon 620 ¼ WJ	2
R105L/R	60F 473-¼ J	Carbon 47K ¼ WJ	2
R106L/R	60F 333-¼ J	Carbon 33K ¼ WJ	2
R107L/R	60F 824-¼ J	Carbon 820K ¼ WJ	2
R108L/R	60F 104-¼ J	Carbon 100K ¼ WJ	2
R109L/R	60F 182-¼ J	Carbon 1.8K ¼ WJ	2
R110L/R	60F 471-¼ J	Carbon 470 ¼ WJ	2
R111L/R	60F 332-¼ J	Carbon 3.3K ¼ WJ	2
R112L/R	60F 473-¼ J	Carbon 47K ¼ WJ	2
R113L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R114	60F 101-¼ J	Carbon 100 ¼ WJ	1
R115	60F 101-¼ J	Carbon 100 ¼ WJ	1
R218L/R	60F 334-¼ J	Carbon 330K ¼ WJ	2
R220L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R221L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R301L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R302L/R	60F 333-¼ J	Carbon 33K ¼ WJ	2
R303L/R	60F 222-¼ J	Carbon 2.2K ¼ WJ	2
R304L/R	60F 333-¼ J	Carbon 33K ¼ WJ	2
R305L/R	60F 332-¼ J	Carbon 3.3K ¼ WJ	2
R306L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R307L/R	60M 100-1J	Metal Oxide 10 1WJ	2
R308L/R	60M 100-1J	Metal Oxide 10 1WJ	2
R309L/R	60M 271-1J	Metal Oxide 270 1WJ	2
R401L/R	60F 103-¼ J	Carbon 10K ¼ J	2
R402L/R	60F 334-¼ J	Carbon 330K ¼ WJ	2
R403L/R	60F 243-¼ J	Carbon 24K ¼ WJ	2
R404L/R	60F 331-¼ J	Carbon 330 ¼ WJ	2
R405L/R	60F 392-¼ J	Carbon 3.9K ¼ WJ	2
R406L/R	60F 104-¼ J	Carbon 100K ¼ WJ	2
R407L/R	60F 820-¼ J	Carbon 82 ¼ WJ	2
R408L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R409L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R410L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R411L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R412L/R	60F 102-¼ J	Carbon 1K ¼ WJ	2
R413L/R	60F 152-¼ J	Carbon 1.5K ¼ WJ	2
R414L/R	60F 271-¼ J	Carbon 270 ¼ WJ	2
R501L/R	60M 271-1J	Metal Oxide 270 1WJ	2
R502L/R	60M 271-1J	Metal Oxide 270 1WJ	2
CAPACITORS			
C101L/R	50Al 479-16E	Elect 4.7uF 16WV E	2
C102L/R	50CE 100-50J	Ceramie 10pF 50WV J	2
C103L/R	50CE 101-50J	Ceramie 100pF 50WV J	2
C104L/R	50Al 101-6.3E	Elect 100uF 6.3WV E	2
C105L/R	50MY 222-50J	Mylar 0.0022uF 50WV J	2
C106L/R	50MY 822-50J	Mylar 0.0082uF 50WV J	2
C107L/R	50Al 478-50E	Elect 0.47uF 50WV E	2
C108L/R	50Al 221-6.3E	Elect 220uF 6.3WV E	2
C109	50CE 473-50J	Ceramic 0.047uF 50WV J	1
C110	50Al 221-16E	Elect 220uF 16WV E	1
C111	50Al 221-16E	Elect 220uF 16WV E	1
C301L/R	50Al 479-16E	Elect 4.7uF 16WV E	2
C302L/R	50CE 471-50J	Ceramic 470pF 50WV J	2
C303	50Al 109-50E	Elect 1uF 50E	1
C304L/R	50Al 220-16E	Elect 22uF 16WV E	2
C305L/R	50CE 509-50J	Ceramic 5pF 50WV J	2
C306L/R	50Al 220-35E	Elect 22uF 35WV E	2
C307L/R	50MY473-50J	Mylar 0.047uF 50WV J	2
C308	50Al 101-35E	Elect 100uF 35WV E	1
C401L/R	50CE 103-50J	Ceramic 0.01uF 50WV J	2
C402L/R	50Al 478-50E	Elect 0.47uF 50WV E	2
C403L/R	50Al 109-50E	Elect 1uF 50WV E	2
C404L/R	50Al 478-50E	Elect 0.47uF 50WV E	2
FUSE			
F503L/R	36BFB 2.5-250	Fuse(F2.5A) Speaker	2
TONE PC ROARD K40378-1			
RESRSTORS			
R201L/R	60F 103-¼ J	Carbon 10K ¼ W J	2
R202L/R	60F 102-¼ J	Carbon 1K ¼ W J	2
R203L/R	60F 394-¼ J	Carbon 390K ¼ W J	2
R204	60F 563-¼ J	Carbon 56K ¼ W J	1
R205	60F 103-¼ J	Carbon 10K ¼ W J	1
R206L/R	60F 183-¼ J	Carbon 18K ¼ W J	2
R207L/R	60F 271-¼ J	Carbon 270 ¼ W J	2
R208L/R	60F 122-¼ J	Carbon 1.2K ¼ W J	2
R209L/R	60F 103-¼ J	Carbon 10K ¼ W J	2
R210L/R	60F 223-¼ J	Carbon 22K ¼ W J	2

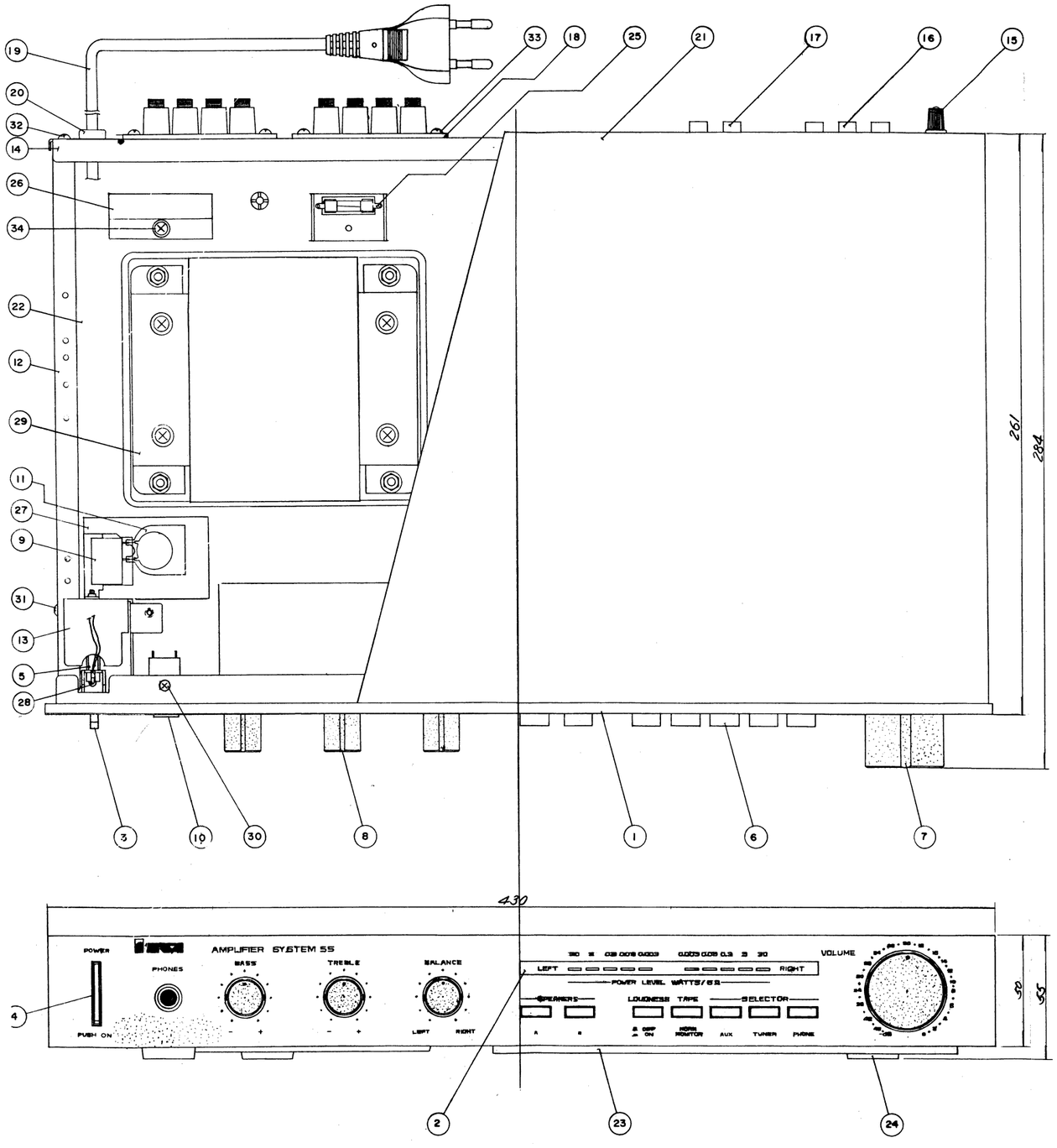
● PARTS LIST

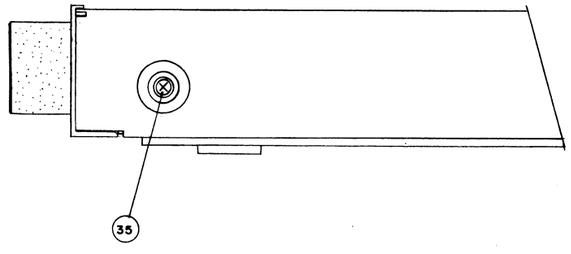
Ref No.	Parts No.	Description	Q'ty
R211L/R	60F 103-¼ J	Carbon 10K ¼ W J	2
R212L/R	60F 472-¼ J	Carbon 4.7K ¼ W J	2
R213L/R	60F 124-¼ J	Carbon 120K ¼ W J	2
R214L/R	60F 124-¼ J	Carbon 120K ¼ W J	2
R215L/R	60F 824-¼ J	Carbon 820K ¼ W J	2
R216L/R	60F 472-¼ J	Carbon 4.7K ¼ W J	2
R217L/R	60F 102-¼ J	Carbon 1K ¼ W J	2
R218	60F 101-¼ J	Carbon 100 ¼ W J	1
CAPACITORS			
C201L/R	50CE 471-50J	Ceramic 470pF 50WV J	2
C202L/R	50MY 473-50J	Mylar 0.047uF 50WV J	2
C203L/R	50A1 478-50E	Elect 0.47uF 50WV E	2
C204	50A1 100-16E	Elect 10uF 16WV E	1
C205L/R	50CE 101-50J	Ceramic 100pF 50WV J	2
C206L/R	50CE 101-50J	Ceramic 100pF 50WV J	2
C207L/R	50A1 479-16E	Elect 4.7uF 16WV E	2
C208L/R	50MY 563-50J	Mylar 0.056uF 50WV J	2
C209L/R	50MY 563-50J	Mylar 0.056uF 50WV J	2
C210L/R	50PS 821-50J	Poly 820pF 50WV J	2
C211L/R	50A1 109-50E	Elect 1uF 50WV E	2
C212L/R	50CE 101-50J	Ceramic 100pF 50WV J	2
C213L/R	50A1 479-16E	Elect 4.7uF 16WV E	2
C214	50A1 221-16E	Elect 220uF 16WV E	1
CHASSIS			
FUSE			
F501	36BSB 0.5-250	Fuse(T500mA) Primary	1
F502	36BSB 0.16-250	Fuse(T160mA) Secondary	1
CAPACITORS			
C504	ECK-DHS 472MD	Ceramic 0.0047uF 400VAC	1
C506L/R	50CE 102-50J	Ceramic 0.001uF 50WV J	2
C507L/R	50CE 102-50J	Ceramic 0.001uF 50WV J	2
P.C BOARD			
	K40378	Main Board	
	K40378-1	Tone Board	
	K40378-2	Switch Board	
	K40378-3	Display LED Board	
	K40378-4	Volume Board	

● TOP VIEW OF P.C. BOARDS



DISASSEMBILY

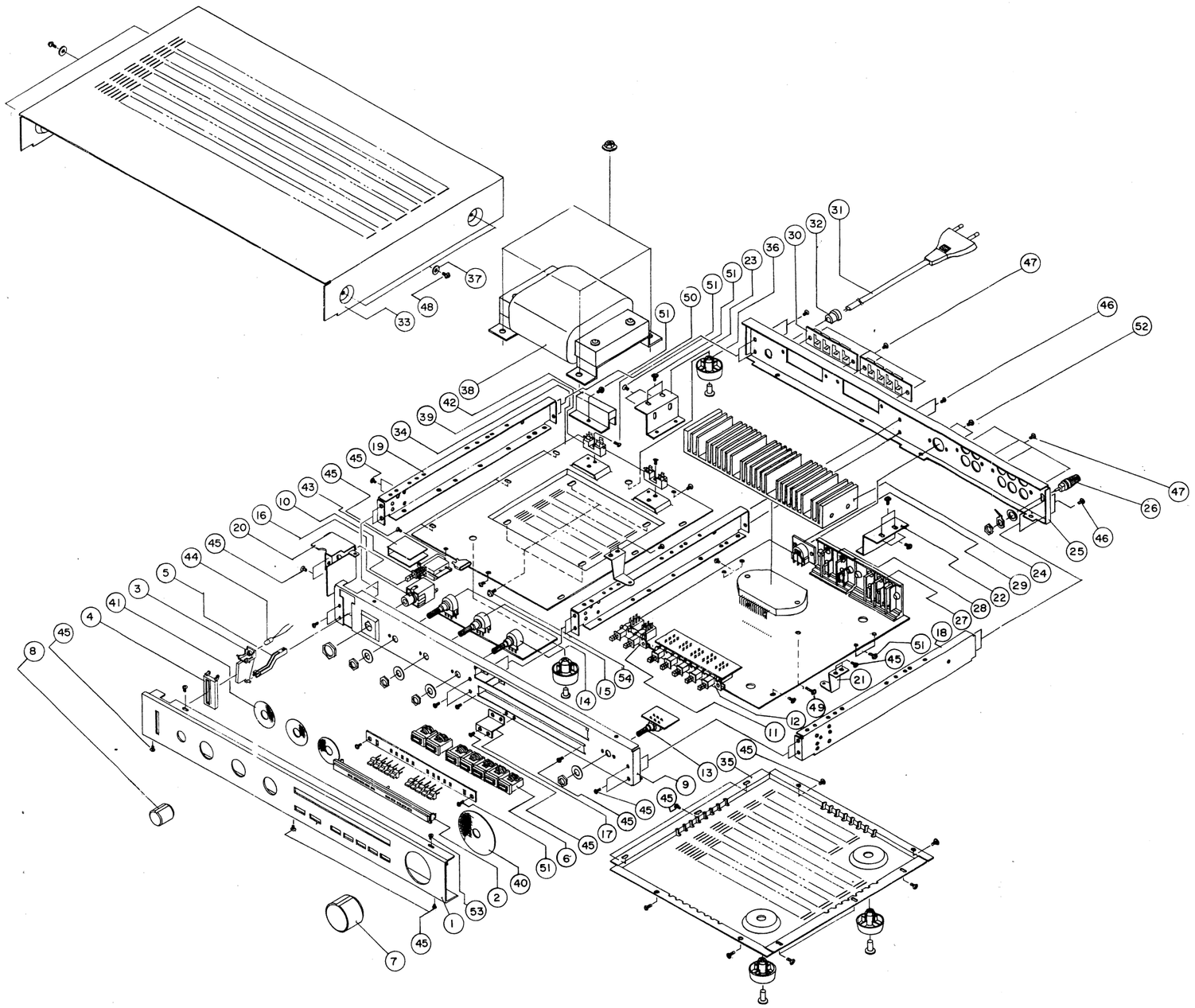




PARTS LIST

KEY.NO	PARTS NO	DESCRIPTION	Q'TY
1	PC-61119	FRONT PANEL	
2	PC-71268	L.E.D HOLDER	
3	PE-71271	POWER KNOB	
4	PE-71272	POWER BEZEL	
5	PD-71275	SWITCH GUIDE"B"	
6	AE-72170	PUSH KNOB ASS'Y	
7	PE-72308	KNOB(VOLUME)	
8	PE-72309	KNOB(CONTROL)	
9	PE-90303	POWER PUSH SW	
10	PE-95035	PHONE JACK	
11	PE-77071	CAP. TUBE	
12	PD-62317B-01	MAIN FRAME(L)	
13	PE-68738	POWER SW B.K.T	
14	PC-62439	BACK CHASSIS	
15	AD-70052	SYSTEM GROUND	
16	AE-95059	R.C.A JACK(6P)	
17	AE-95058	R.C.A JACK(4P)	
18	PE-76003	SPEAKER TERMINAL	
19	PE-67051-01	AC POWER CORD	
20	PD-71008A	CORD STOPPER	
21	PC-74356-01	STEEL CABINET	
22	PC-62437B	BOTTOM COVER "A"	
23	PC-62438	BOTTOM COVER "B"	
24	AE-71053	RUBBER FOOT ASS'Y	
25	PE-69096	FUSE HOLDER	
26	PE-71281	FUSE COVER	
27	PE-71279	POWER SW COVER	
28	PE-64069-04	LAMP(12V40 A)	
29	PD-35174	TRANSFORMER	
30		SCREW #3 FTC 3x6	
31		SCREW #3 BTC 3x6	
32		SCREW #3 BTC 3x6(B)	
33		SCREW PTC 3x8	
34		SCREW WPTC 3x8	
35		SCREW #3 WPTC 3x8(B)	

● EXPLODED VIEW OF CABINET AND CHASSIS

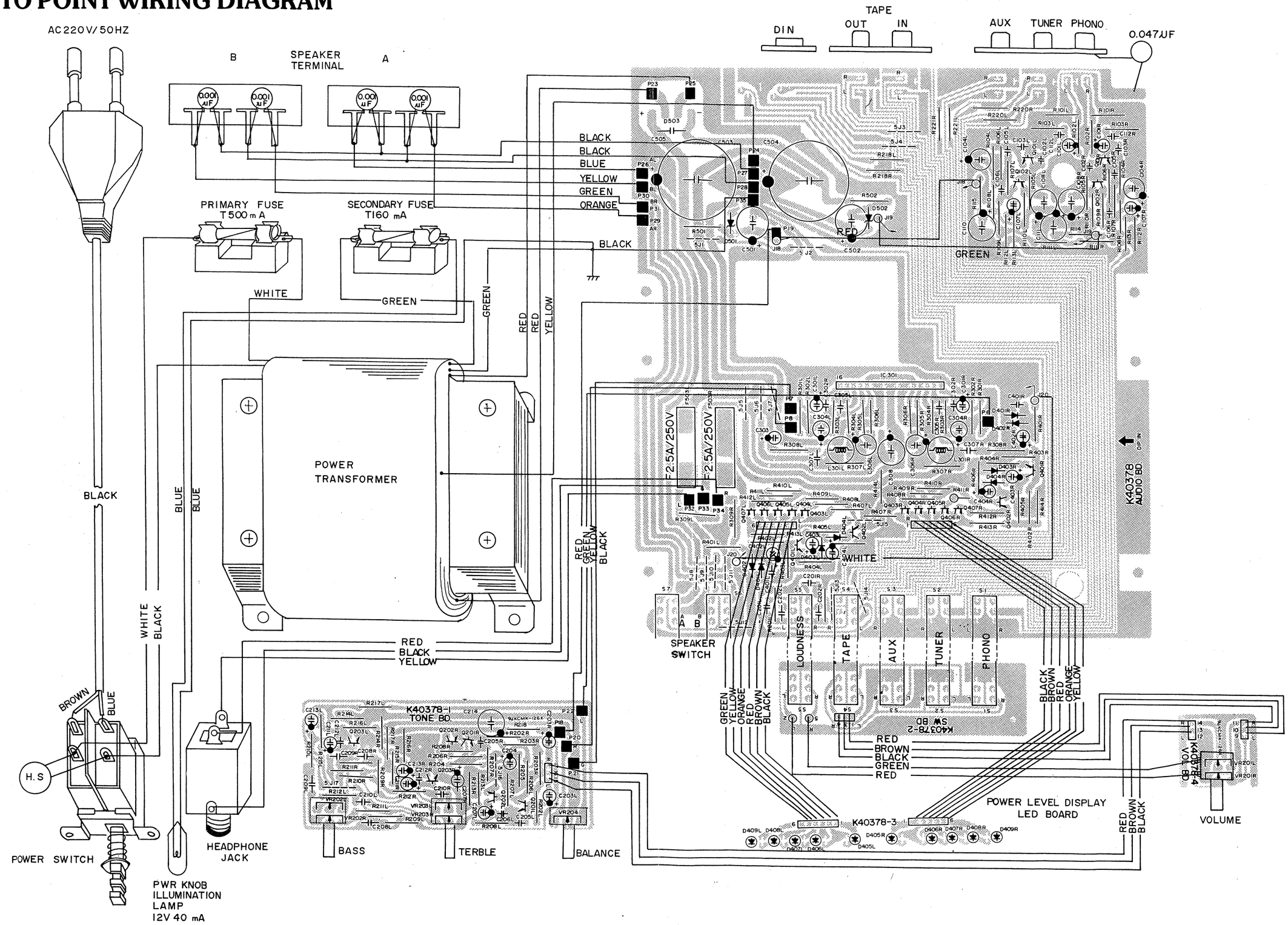


● PARTS LIST ACCORDING TO EXPLODED VIEW

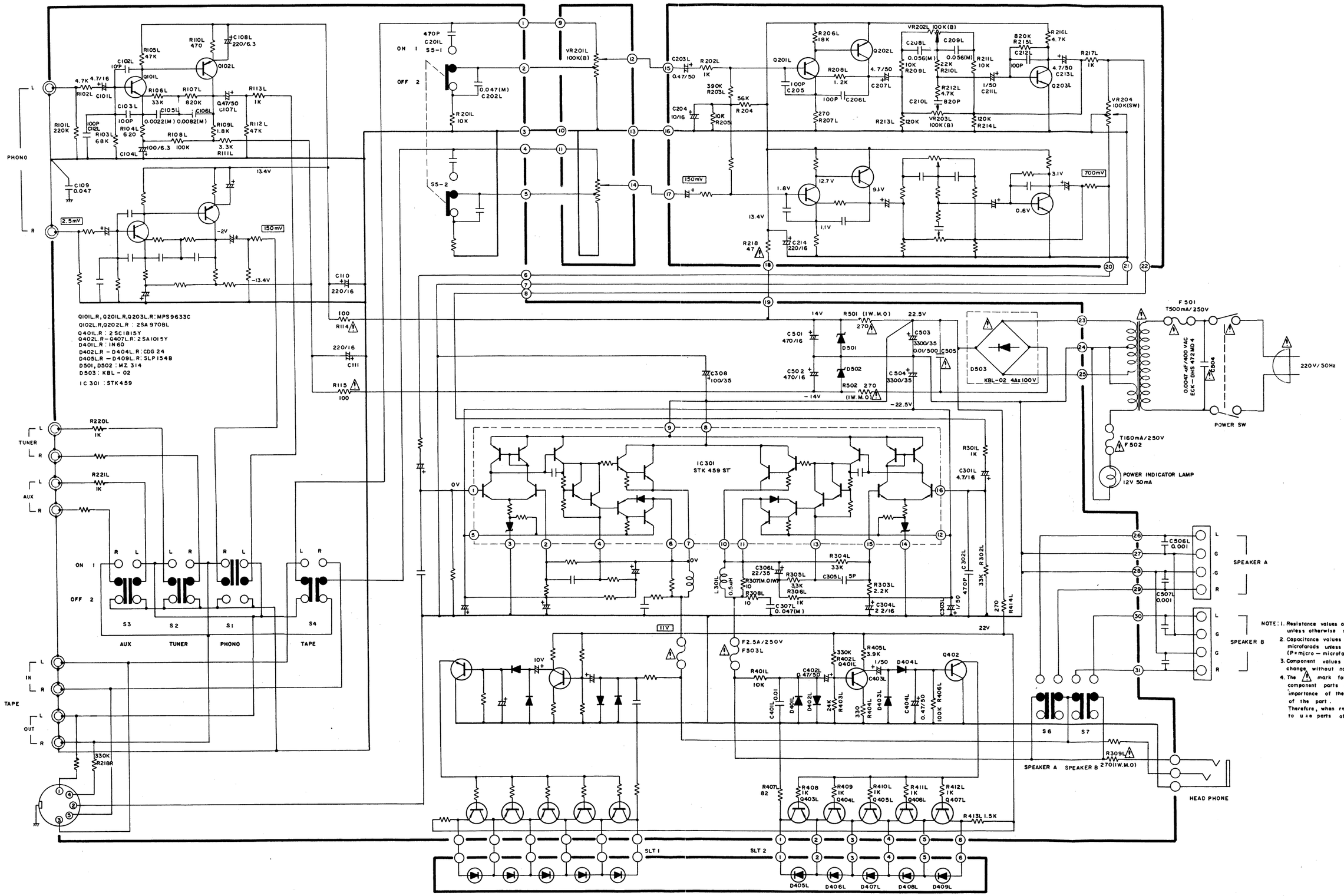
KEY.NO	PARTS NO	DESCRIPTION	Q'TY
1	PC-61119	FRONT PANEL	1
2	PC71268	L.E.D HOLDER	1
3	PE-71271	POWER KNOB	1
4	PE-71272	POWER KNOB BEZEL	1
5	PD-71275	SWITCH GUIDE "B"	1
6	AE-72170	PUSH KNOB ASS'Y	7
7	PE-72308	VOLUME KNOB	1
8	PE-72309	CONTROL KNOB	3
9	PC-62440	FRONT CHASSIS	1
10	PE-90303	POWER PUSH SW	1
11	PE-90304	PUSH SW(2GANG)	1
12	PE-90305	PUSH SW(5GANG)	1
13	PE-15115	POTENTIOMETER(VOLUME)	1
14	PE-15114	POTENTIOMETER(BALANCE)	1
15	PE-15089	POTENTIOMETER(TREBLE,BASS)	2
16	PE-95035	PNONE JACK	1
17	PE-68747	PUSH SW B.K.T	1
18	PD-62317B-02	MAIN FRAME(R)	1
19	PD-62317B-01	MAIN FRAME(L)	2
20	PE-68738	POWER SW B.K.T	1
21	PE-68733A	P.C.B B.K.T	2
22	PE-68734-01	HEAT SINK B.K.T(R)	1
23	PE-68734-02	HEAT SINK B.K.T(L)	1
24	PD-73081	POWER HEAT SINK	1
25	PC-62439	BACK CHASSIS	1
26	AD-70052	SYSTEM GROUND	1
27	AE-95059	R.C.A JACK(6P)	1

KEY.NO	PARTS NO	DESICRPTION	Q'TY
28	AE-95058	R.C.A JACK(4P)	1
29	PE-95043	DIN CONNECTOR	1
30	PE-76003	SPEAKER TERMINAL	2
31	PE-67051-01	AC POWER CORD	1
32	PD-71008A	CORD STOPPER(HEYCO)	1
33	PC-74356-01	STEEL CABINET	1
34	PC-62437B	BOTTOM COVER "A"	1
35	PC-62438	BOTTOM COVER "B"	1
36	AE-71053	RUBBER FOOT ASS'Y	4
37	PE-70046	VINYL WASHER	4
38	PD-35174	POWER TRANSFORMER	1
39	PE-69096	FUSE HOLDER(20m/m)	2
40	PE-72178	STRIP FELT(VOULUME)	1
41	PE-72175	STRIP FELT(CONTROL)	3
42	PE-71281	FUSE COVER	1
43	PE-71279	POWER SW COVER	1
44	PE-64069-04	LAMP(12V 40mA)	1
45		SCREW, #3 BTC 3x6	29
46		SCREW, #3 PTC 3x6(B)	6
47		SCREW, PTC 3x8(B)	8
48		SCREW, #3 WPTC 3x8(B)	4
49		SCREW, WPM 3x15	2
50		SCREW, PTC 3x6(B)	2
51		SCREW, WPTC 3x8	19
52		SCREW, PM3x10(B)	2
53		SCREW, #3 FTC 3x6	2
54		SCREW, WPM 4x10	4

POINT TO POINT WIRING DIAGRAM



● SCHEMATIC DIAGRAM



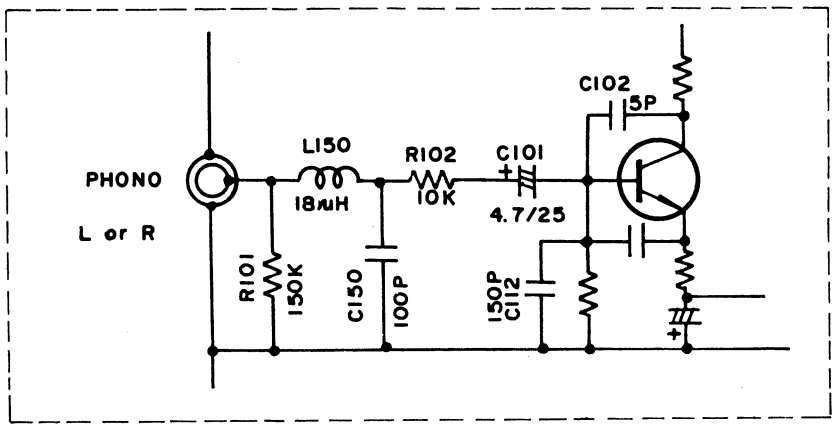
NOTE: 1. Resistance values are indicated in ohms unless otherwise specified.(K=1,000)
2. Capacitance values are shown in microfarads unless otherwise noted (P=micro – microfarads)
3. Component values are subject to change without notices.
4. The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation

TA-2720 (Additional Service Manual)

These additional service informations are applicable to the units of new FTZ version. (13/592S)
With Serial No. 138350—.

1. Corrections of schematic diagram

(a) Phono

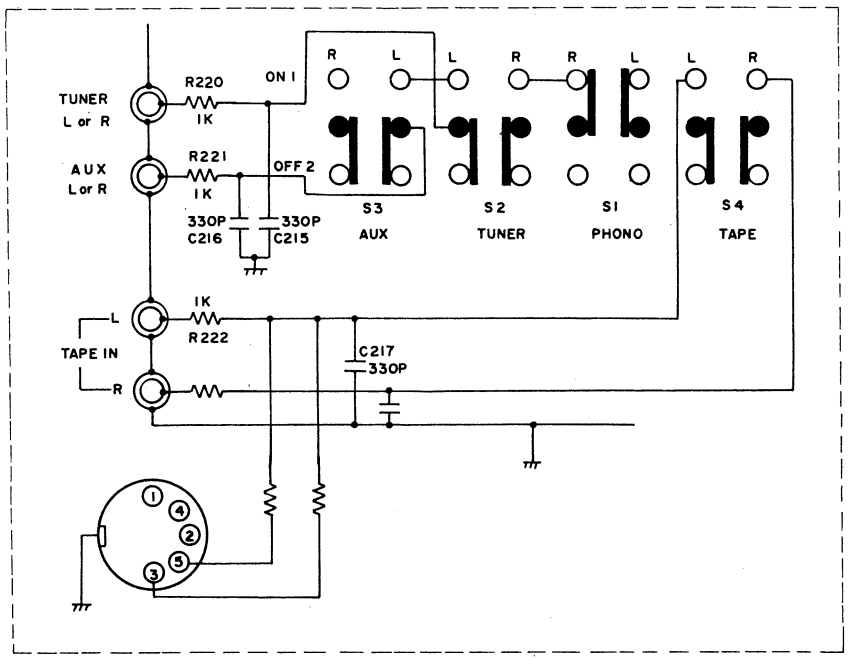


* Following parts are changed or added.

(a) Changing parts
- (1) R101: from 220K ohm to 150K ohm
- (2) R102: from 4.7K ohm to 10K ohm
- (3) C102: from 10pF to 5pF
- (4) C112: from 100pF to 150pF

(b) Adding parts
- (1) L150: 18μH
- (2) C150: Capacitor 100pF

(b) Tuner, Aux and Tape in



* **ADDED A 330PF CAPACITOR IN INPUT JACKS OF TUNER AND AUX, AND A 330PF + 1K OHM IN INPUT JACK OF TAPE IN.**